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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No.	
First Inventor or Application Identifier	RAJA TULI
Title	PORTABLE HIGH SPEED INTERNET OR DESKTOP DEVICE
Express Mail Label No.	

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ * Fee Transmittal Form *(e.g., PTO/SB/17)*
(Submit an original and a duplicate for fee processing)
2. ☑ Specification [Total Pages 12]
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ☑ Drawing(s) *(35 U.S.C. 113)* [Total Sheets]
4. Oath or Declaration [Total Pages]
   a. ☑ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d)) *(for continuation/divisional with Box 16 completed)*
      i. ☐ DELETION OF INVENTOR(S)
      Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

** NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).*

5. ☐ Microfiche Computer Program *(Appendix)*
6. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Copy
   b. ☐ Paper Copy (identical to computer copy)
   c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
9. ☐ English Translation Document *(if applicable)*
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☐ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
13. ☑ * Small Entity Statement(s) *(PTO/SB/09-12)* ☐ Statement filed in prior application, Status still proper and desired
14. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
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16. **If a CONTINUING APPLICATION,** *check appropriate box, and supply the requisite information below and in a preliminary amendment:*
☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: ____/____
Prior application information: Examiner _____ *Group / Art Unit:* _____
For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

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Name	RAJA TULI				
Address	1155 RENE LEVESQUE WEST #3500				
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Name (Print/Type)	RAJA TULI	Registration No. (Attorney/Agent)	
Signature	x [signature]	Date	2/4/2000

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STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR	Docket Number (Optional)

Applicant, Patentee, or Identifier: RAJA TULI

Application or Patent No.: _____

Filed or Issued: _____

Title: PORTABLE HIGH SPEED INTERNET OR DESKTOP DEVICE

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- [x] the specification filed herewith with title as listed above.
- [ ] the application identified above.
- [ ] the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- [x] No such person, concern, or organization exists.
- [ ] Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

RAJA TULI		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
[signature]		
Signature of inventor	Signature of inventor	Signature of inventor
2/4/2000		
Date	Date	Date

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PORTABLE HIGH SPEED INTERNET OR DESKTOP DEVICE

Prior Art

The background of the present invention includes US Patent # 5925103, Internet Access Device, which describes an improved Internet access system, vastly different from the present invention. Other prior art would include palm top computers and hand-held computers that have limited processing power due to design restrictions. Thus, these computers are much slower for accessing the Internet and World Wide Web.

The present invention enhances the server's processing speed, data transfer and retrieval to and from the portable devices, with the aid of specialized embedded software in the server. The result is a cost effective Internet access solution.

Summary

It is an object of the present invention to disclose a portable device that can access the Internet and World Wide Web, at extremely low costs. It is another object of the present invention to provide fast access to the Internet such that refreshing pages is quick and efficient.

The principal embodiment of the present invention discloses a portable device that comprises a modem that connects to a cellular telephone. Thus, the device has a wireless connection to the Internet. A host computer, which may also be a Web server connects directly to the Internet. The host computer comprises multiple software programs, for example a Browser Translator, which translates HTML images into black and white bit map or raster images. The compressed bit map or raster images are sent

to the portable device, and the device decompresses the images. Thus, the user views a bit map image of a Web page.

The portable device comprises methods for pointing and clicking on text and images representing links to other Web pages. Clicking events are sent to the host computer that performs the commands via a virtual browser. The host computer then sends the required information to the portable device as a compressed image. The portable device decompresses the image and the user views a new page.

An alternate embodiment discloses the display of the palm top device as mirroring the virtual Web browser. Clicking, scrolling, and drag and drop events are performed on the palm top device, but the actual execution of the event is realized in the virtual browser.

Another embodiment further discloses multiple virtual desktops, which may be sent to multiple palm top devices as a bit map or raster images. The user may create and modify documents and files using a pop-up version of a keyboard, or a keyboard included with the device.

DETAILED DESCRIPTION OF THE DRAWINGS

FIGURE 1 illustrates block diagram of the host computer, the portable device with wireless connection and the user.

FIGURE 2 illustrates portions of the image with respect to the displayable area.

FIGURE 3 illustrates sub-divisions of the image to be displayed.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

The principal embodiment of the present invention aims to provide a device that allows a user to access the Internet or the World Wide Web (WWW), which device is similar to a palm top computer. It is a further aim of the present invention, to reduce the cost of the device. It is a further aim of the present invention, is to increase the speed of refreshing the screen when the user clicks on a link and commands another page to be displayed.

Currently, existing palm top devices such as the Palm Pilot VII and Windows CE type devices contain an operating system, and within the operating system a mini-browser to interpret information received from the WWW or Internet and then display this information on the screen. This requires a powerful microprocessor.

The principal embodiment of the present invention is disclosed in **Figure 1**. A host computer **1** is depicted that is connected to the Internet and may also be a Web server. Running in the host computer, is a Web server program **2**. When a remote user **3** requests to view a Web page (or electronic message etc.) the Web server software receives HTML, JAVA, etc. information and transmits this information to another software, the Browser Translator **4**. This software translates the information, (i.e. the entire image comprising graphics and text) received in the form of HTML, Java, etc. (information may be gathered from different sources) and translates it to a black and white bit map or raster image. In another embodiment, the software translates the information into a raster or color image. The image **5**, as shown in **Figure 2,** contains the information that would normally be displayed on a single Web page. The translation program therefore, also acts as a virtual browser **6.** As can be seen in **Figure 2**, the image **5** to be displayed in a browser window **6** is usually larger than the displayable area of the browser window **6**.

The image **5** is further divided into sections **7, 8, 9,** and **10,** as shown in **Figure 3**. The image is divided after the bitmap or raster is created. The reason for the division (as will

be explained later) is for the purpose of display priority on the user's display. The image **5** is then sent to another program **11** running on the host computer **1 (Fig. 1)**, which compresses the image using a loss-less compression method. The compression method may be group 3 or group 4, or another method.

The programs **4** and **11** can have multiple instances running simultaneously on the host server for the purpose of connecting to multiple users. The compressed image, after being processed by program **11**, is sent to the user, using a protocol in which information may be broken down into packets.

The information is received by a palm top device **12** that has the ability to display a monochrome image, in its display window **13.** The information is decompressed and displayed in the order of priority such that part of image **7**, which substantially or completely covers the displayable area **13 (Fig. 2)**, of the palm device is decompressed and displayed first and then sequentially the portions **8, 9, 10** of the image are decompressed and stored in an internal memory of the palm top device to be displayed later when the user scrolls up, down, or sideways to these parts of the image.

A CPU resident in the palm top device therefore has the ability to decompress a bit map or raster image that may be larger than the size of the display and allow the user to traverse this bit map or raster image. The primary method of traversing the image is through conventional scroll bars positioned at the sides of the image.

The resident CPU on the palm top device has no ability to determine which parts part or parts of the image, that is being displayed, represent links to other Web pages etc. Thus, the translator program **4 (Fig. 1)** translates the image in the virtual browser **6** such that the words that represent links on the page **5 (Fig. 2)** are translated to be slightly bolder. The user may therefore consider text that is bold to be links.

The palm top device provides the user with a pointing device. This pointing device may be a touch screen or tracking ball, etc. The palm top device also allows the user to click

on specified areas. As soon as the user clicks on part of an image, the shape of the pointer changes from an arrow to an hourglass. A message is sent to the host computer, transmitting the location of the clicked down event. A program **14** interprets the message and provides a virtual click down in the virtual browser created in the translator program **4.** If the user has pressed in an area of the image that does not represent a link or text box, a message is dispatched to the palm top device which immediately changes the hourglass shape of the pointer back to an arrow (in the case of a touch screen, from an hour glass to nothing). Further to this, if the user has clicked on a part of the image which represents a link, a new Web page is extracted from the Internet or WWW, translated by translator program **4 (Fig 1)** into a bit map or raster, and compressed by compression program **11** and dispatched to the palm top device where a new page is displayed. Furthermore, the image **5** is continuously being updated and translated and sent to the palm top device where it is continuously being refreshed. This occurs once every few seconds.

When the user clicks in a text box or in a box in the display area into which letters or numbers must be input, the cursor first changes into an hourglass, and a message is sent to the host server. The host server recognizes that the click down event has occurred in the text box, and sends a message back to the palm top device to inform the palm top device to pop-up a keyboard on part of the screen. The user then types, using the pointer, the letters or words to be entered into the text box and presses "enter" or "go". The keyboard then disappears and the cursor changes back to an hourglass shape (in another embodiment, the keyboard could be replaced with a real keyboard or with an area that recognizes users' handwriting). The information typed into the text box is transmitted in a message to the host computer. The host computer enters the information into a text box in the virtual browser.

The user sees, after a short pause, as the image is refreshed on the palm top device that the words, or letters or numbers have been entered into the text box. Further to this, the host computer may also break up the image such that the portion that has been changed, i.e. the text box area, is sent first.

In another embodiment of the present invention, images are only refreshed when as event occurs such as a mouse down event on a link or in a text box.

In a further embodiment only those portions of the image that changes may be transmitted from the host computer to the palm top device. Other images in the virtual browser that are continuously changing, such as banner advertisements, may be the only other images sent to the palm top computer as they change.

In the principal embodiment, the palm top device also contains a modem, which can be linked to the user's mobile telephone **15** and information that is communicated between the palm top device and the host computer is sent and received wirelessly through the mobile telephone.

Furthermore, the palm top device only contains enough memory to store the current displayable page. When the user presses a back or forward button, a message is sent to the host server, and the host server sends the reference page. The back and forward buttons etc. may be hard wired into the palm top device, or may be part of the display area.

Further to this, part of the image representing buttons (and other things) on the virtual browser may be sent as part of the compressed image and buttons such as forward and back may be treated the same way as links are handled as previously described.

In another embodiment, the palm top device comprises a modem that permits the device to connect to a cellular telephone **15** in digital format.

In another embodiment, the connection to the cellular telephone **15** is made through an analog modem connected to an ear jack of the cellular telephone.

In yet another embodiment of the present invention, the modem is replaced by an analog modem that has the capability to be connected to a landline providing a standard 56kbps-type connection.

Further embodiments may provide connections through ISDN, cable modems etc.

In a further embodiment, the palm top device may contain a large screen to be used in a fashion similar to a home Internet appliance.

In a further embodiment, the image transferred between the host computer and the remote device (previously the palm top device) may be a color image and the compression method used may be of a Jpeg or other compression methods used for color images. A gray scale image may also be used to reduce bandwidth or display costs.

In a further embodiment, the device includes no screen, but only outputs to be hooked to a television screen or external monitor for display.

The remote device in the principal embodiment only has the ability to decompress the image it receives; display the image it receives; allow the user to scroll through the image; provide the user with a pointing device to point and click on the image; send messages providing location of click down event; provide the user with a method to input letters and numbers; send a message containing these letters and numbers.

The principal embodiment contains no other structured or intelligent information about the image.

The following is an alternate embodiment to the present invention:

In an alternate embodiment of the present invention, the display of the palm top device mirrors the entire virtual browser window. The user views a bit map or raster image that represents the entire window, i.e. the menu and scroll bars, of the virtual browser. This is contrary to the principal embodiment, where the entire Web page which may be bigger than the browser window, and which when transmitted to the palm top device is displayed in portions thus compelling the user to scroll, on the device, to view the image. In this case, the CPU on the palm top device performs the scrolling. In the alternate embodiment, the user may perform click down events such as selecting menu items, scrolling on the scroll bars, or drag and drop events, on the bit map or raster image, but the true execution of the command is realized in the virtual browser.

For example, in the alternate embodiment, if the user scrolls through the bit map image, with the pointer, the actual scrolling command is completed in the virtual browser. As the user is scrolling on the bit map image, the cursor is changed to an hourglass and a message is sent to the server. The virtual browser then advances or reverses the virtual Web page. The new instances of the virtual Web page, as they appear in the Web browser, are rasterized and compressed and sent to the palm top device as bit map or raster images. There is a minimal delay for the user to receive the new images. The server may send the part of the image that is changed, or the entire Web window, to the palm top device. Furthermore, a continuous refreshing of the page may also occur.

If the user performs a clicking event on a "back" or "forward" button located on the menu, to shift Web pages, the actual "back" or "forward" transition occurs in the virtual Web browser. The new Web page is compressed and transmitted to the palm top device in a bit map or raster image.

The user may also perform drag and drop events on the palm top device, however the actual drag and drop event occurs in the virtual Web browser. For example, to drag an

icon from one location on the display to another, the user must first click on the icon with the pointer and then move the pointer to the location where the icon will be placed. The pointer changes to an hourglass and a message is sent to the server that the pointer has been clicked in a specific location and moved to another location. The virtual Web browser performs the drag and drop event, and subsequently rasterizes and compresses the virtual Web page and sends it to the palm top device as bit map or raster image. The server may send only the portion of the raster image that has changed, or it may send the entire image, or it may have a continuous refreshing process.

In another embodiment of the present invention, the server may comprise multiple virtual desktops that the user may access through the palm top device. The desk top, as viewed on the device will be in a bit map or raster format. Thus, the access to a virtual desktop enables the user to create and modify files and documents directly on the palm top device.

The server contains a virtual desktop for each user that may comprise applications, disk space etc. A picture of this virtual desktop is then made, i.e. what normally would appear on a computer screen as a desktop, is rasterized, or a bit map of it is created and then it is compressed and transmitted to the palm top device where it is decompressed and shown.

The user may perform click down events, with the pointer, on icons or buttons located on the desktop. For example, if the user clicks on the "start" button, the shape of the cursor changes to an hourglass and a message is sent to the server that the pointer has been clicked in a certain location. The virtual desktop performs the click down event and the "start" menu is displayed. The page is rasterized and compressed and sent to the palm top device. Alternately, only the part of the image that is changed (i.e. the menu) is rasterized, compressed and sent.

The user may double-click, with the pointer, on a "start" menu item, for example to open a word processing program, or on an icon. Again, the cursor is transformed into an hourglass and a message is sent to the server that a double-click event has occurred at a specific location. The virtual desktop executes the word processing program and displays a virtual, empty document and menu, including the appropriate buttons. The empty document and menu are rasterized and compressed and sent to the palm top device, as a bit map or raster image. The user may click on an area of the empty document, which changes the cursor to an hourglass and a message is sent to the server. The server recognizes that the click down event has occurred in an area of the empty document, and sends a message to the palm top device to initiate the keyboard. The user may then use the pointer to input data into the keyboard, and then press "enter" or "go". The keyboard disappears and the cursor changes to an hourglass. The input data is sent to the server as a message, and the data in entered into the virtual document on the virtual desktop. The virtual document is rasterized and compressed and sent as a bit map or raster image to the palm top device.

The palm top device may be equipped with a keyboard. The user may click on an area of the empty document with the pointer, changing the cursor to an hourglass. A message is sent to the server that a click down event has occurred on an area of the empty document. The user may begin typing and each keystroke, or groups of keystrokes, are sent to the server as one or multiple messages. The server continuously enters the data into a virtual document on the virtual desktop, and perpetually rasterizes and compresses the data and transmits it back to the palm top device such that the user views the data as it is being input.

CLAIMS

What is claimed:

1. A device that enables a user to view contents of a virtual desktop sent to said device as a raster image of the virtual desktop.

2. A device that enables a user to view contents of a virtual Web browser sent to said device as a raster image of the virtual Web browser.

3. A translator software resident on a host computer that takes a virtual desktop and translates it to a raster image and sends it to a remote location.

4. A translator software resident on a host computer that takes a virtual Web browser and translates it to a raster image and sends it to a remote location.

5. A device as claimed in Claim 1, such that it allows the user to click on any point in the image;

   the device sends a message to a host;
   the host sends back a refreshed raster image.

6. A device as claimed in Claim 1, such that it allows the user to double-click on any point in the image;

   the device sends a message to a host;
   the host sends back a refreshed raster image.

7. A device as claimed in Claim 1, such that it allows the user to drag and drop on any point in the image;

   the device sends a message to a host;
   the host sends back a refreshed raster image.

8. A device as claimed in Claim1, such that;

   it allows the user to click on a point on the image;
   it sends a message to a host;
   if the click event is in a location where the user could type text, the host sends a message back to the device to prompt the user to enter text.

ABSTRACT

The invention discloses a portable device that allows the user to access the Internet and World Wide Web. The portable device includes a modem that connects to a cellular telephone, thus the portable device connects wirelessly to the Internet. A host computer that may also be a Web server, is connected to the Internet and comprises various software programs to translate and compress into bit map or raster images the information received from the Internet. The compressed images are sent to the portable device and the device is capable of decompressing the compressed images. Thus, the user views a bit map image of a Web page. The portable device further comprises methods of pointing and clicking on text and images which represent links to other pages. All commands that the user enters into the portable device are sent to the host computer, which performs the commands via a virtual browser, and then rasterizes and compresses the page sends it to the portable device. An alternate embodiment discloses that the display on the palm top device mirrors the entire virtual browser window. The user may perform such events as clicking and scrolling on the bit map image, however the actual execution of the event occurs in the virtual browser. Another embodiment discloses a virtual desk top that the user may access through the palm top device and create and modify documents.

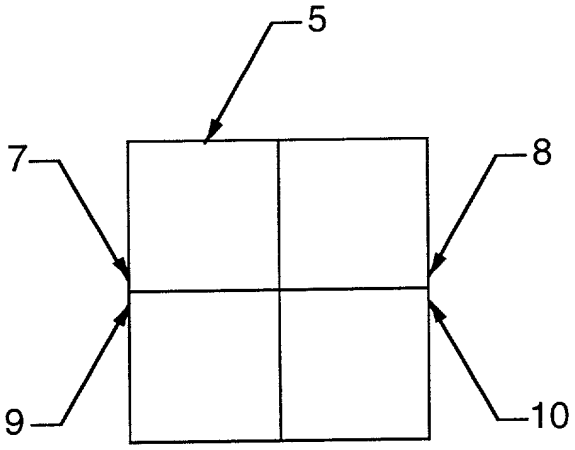

Fig. 3

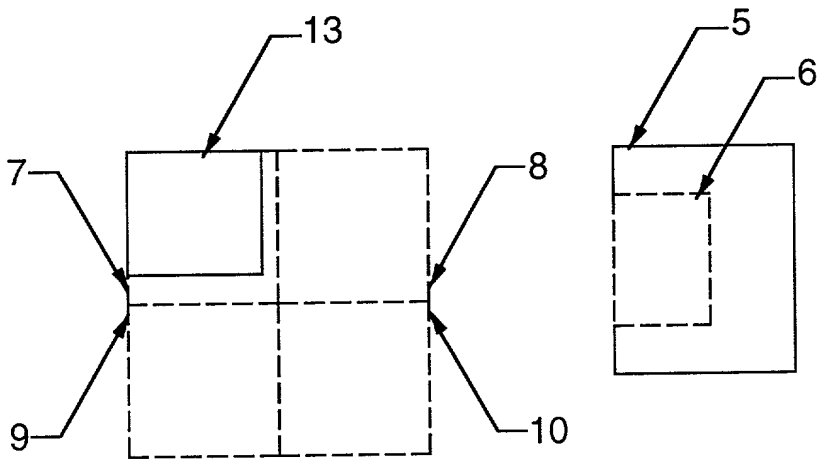

Fig. 2

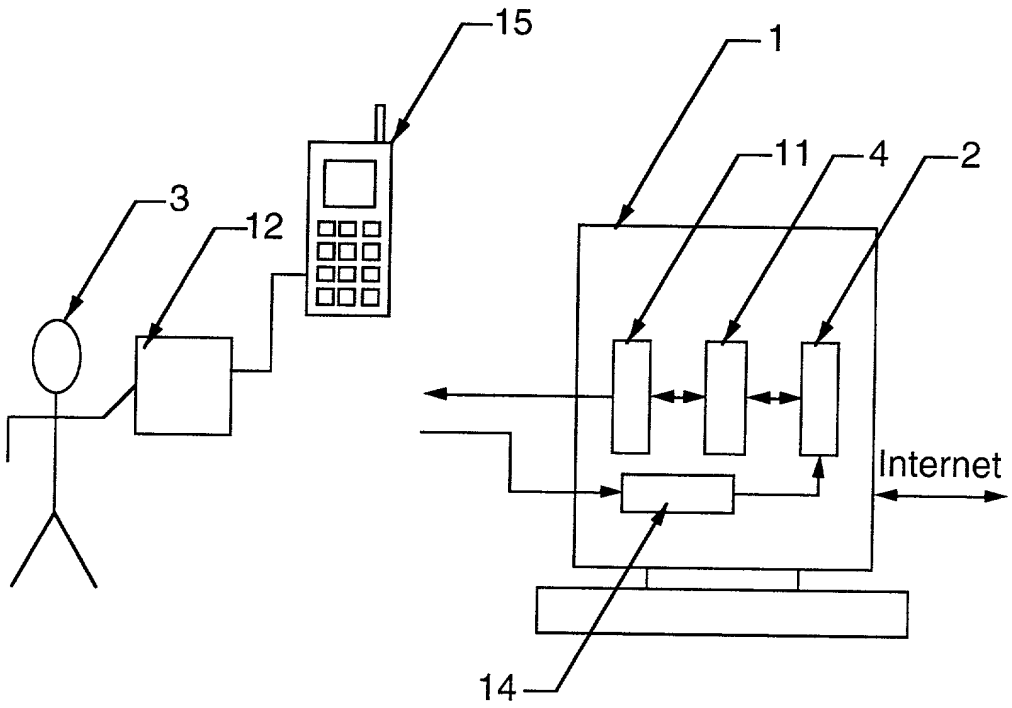

Fig. 1

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

[X] Declaration Submitted with Initial Filing OR [ ] Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	
First Named Inventor	RADATICI
COMPLETE IF KNOWN	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PORTABLE HIGH SPEED INTERNE OR DESKTOP DEVICE

(Title of the Invention)

the specification of which
[X] is attached hereto
OR
[ ] was filed on (MM/DD/YYYY) [ ] as United States Application Number or PCT International Application Number [ ] and was amended on (MM/DD/YYYY) [ ] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]

[ ] Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)

[ ] Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: ☐ Customer Number [ ] → *Place Customer Number Bar Code Label here*

OR

☐ Registered practitioner(s) name/registration number listed below

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☐ Customer Number or Bar Code Label [ ] *OR* ☑ Correspondence address below

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

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Inventor's Signature	[signature]					Date	2/4/00
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☐ Additional inventors are being named on the ____supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto